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Planning for Sustainable Access of Upland Tourism Sites in the Cordillera Region, Philippines

Introduction

Upland tourism sites in the Cordillera Region are composed mostly of natural (e.g. waterfalls and caves) and of man-made creation (e.g. rice terraces and hanging coffins). It takes at least six hours to reach the jump off points from the major city, Baguio City. These jump off points are the town centers that are not usually properly planned to accommodate the influx of tourists (both local and foreign) who usually brought vehicles with them. As they visit tourist sites, most of them would bring their vehicles to as near as possible to the attraction for easy access. However, tourists leave their vehicles in undesignated areas such as basketball courts and barangay plazas which could only accommodate a few number. In worst cases, vehicles are parked by the roadside. Noting that the area is mountainous and has narrow roads, it is a challenge to park as well as drive in these roads. This study documents the existing travel characteristics and access behavior of tourists as they visit tourist sites in the towns of Sagada and Banaue in the Cordillera Region. The motivation of this paper is to propose a sustainable transport and accessibility plan of tourism sites in these towns to reduce the use of motor vehicles and minimize the carbon footprint of tourists as they visit the sites.

Accessibility has been a well-known concept in the transportation planning field since the 1950s. It was introduced as ease of reaching desirable destinations (Hansen 1959), tying land use and activity systems with the transportation networks that serve them. Improving accessibility has recently re-emerged as a central aim of urban planners and aligned disciplines. However, conventional transportation planning has often focused on improving movement (or mobility)—most often by the automobile, to the extent that measurement of accessibility has also been auto-based. Walking is the most common and sustainable mode of transport. Walking is associated with features of the built or social environment (Giles-Corti and Donovan, 2003) including access and proximity to destinations. In the United States the average walking distance for the past 2 decades is 0.25 miles (approximately 400m) for 5 minutes tolerance (Atash, 1994). It was observed that individuals are willing to walk for 20 minutes and about 2.5 km for a highly attractive and good weather environment. Local studies by Fillone and Mateo-Babiano (2018) put the average walking distance in urban roads of the city of Manila at around 600 meters, while Ranosa, et.al. (2017) put it at around 650 meters for a 5-10 minute walk in Baguio city which has rolling terrain.

Methodology

An ocular survey was initially conducted to determine the onsite locations and distances from the town center of tourist destination sites in the area. The locations of the destination sites were visited and inspected by the researcher prior to the collection of data. The mode of transportation used as observed, travel distance, travel time, and travel cost were gathered. Maps where these tourist sites are located, on the other hand, were collated from the municipal engineering and planning offices of both Banaue and Sagada municipalities.

The accessibility survey was conducted in the municipality of Sagada and Banaue. Sagada offers more natural destination sites while Banaue offers more man-made destination sites. Other destination categories like historical and cultural sites were also included in the study. From the initial pilot surveys, all destination sites in Sagada and Banaue were considered; it was then reduced to 16 destination sites (9 choices for Sagada and 7 choices for Banaue, with Sagada as one of those 7). Figure 1 shows the Cordillera Administrative Region (CAR) where Banaue and Sagada are located as part of the Philippine geography.

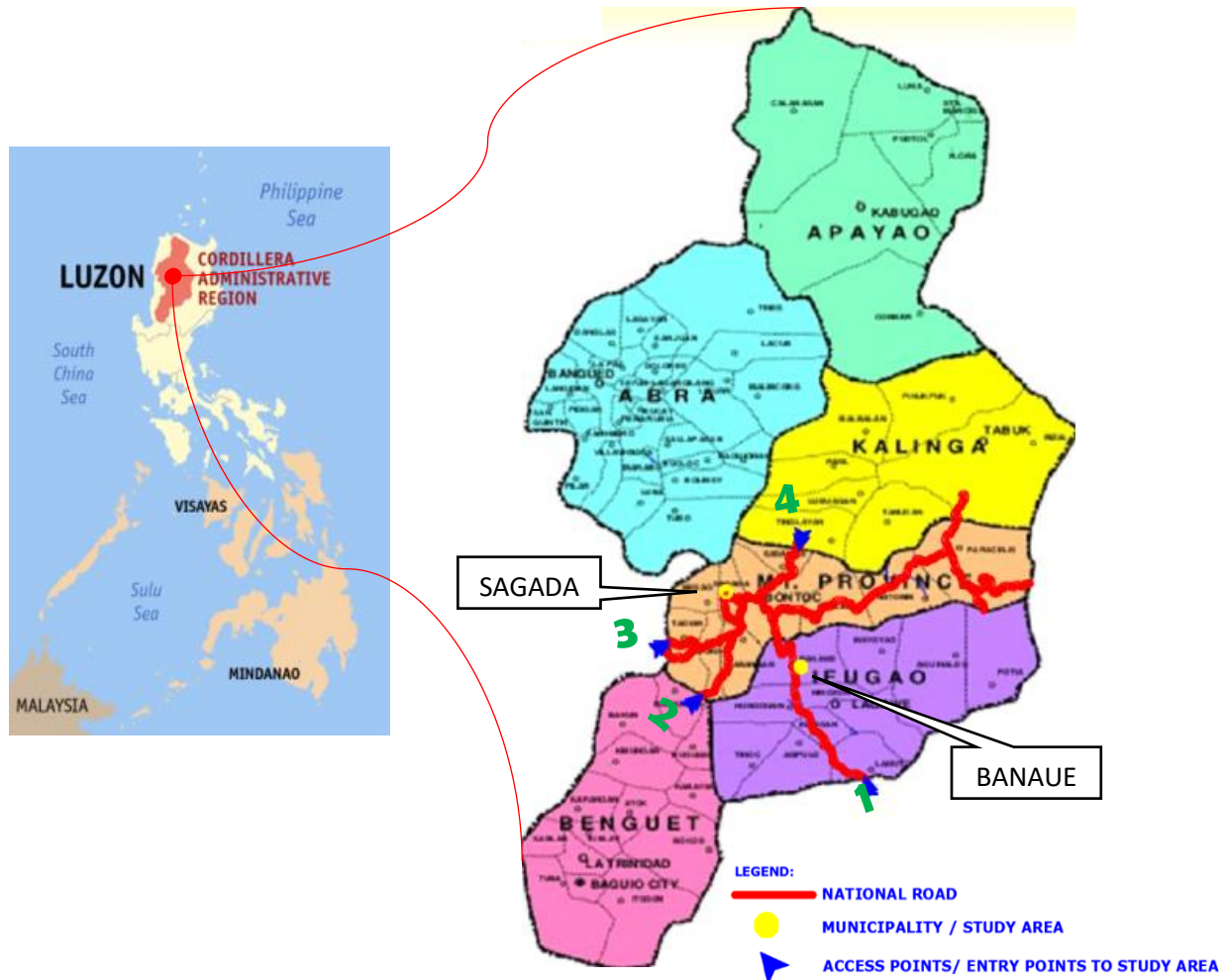


Figure 1. Location of Sagada, Mountain Province and Banaue Ifugao, Philippines
(Source: 2016 Philippine Statistics)

Access Characteristics of Sagada and Banaue

Based on the latest road inventory of DWPH (2016), the road network in Sagada is comprised of national (13.6 km) and provincial (38 km) roads. National roads are fully-concreted. Provincial

roads are, however, constructed as follows: around 25.56 km is concreted, 0.75 km is asphalted, and 11.69 km is made with earth and gravel. No municipal roads are recorded in Sagada.

Available public transport when traveling to and from Sagada are buses and jeepneys. Currently, two bus companies are actively plying the Sagada-Baguio route via Halsema highway in Benguet: GL and Lizardo Trans. Combined, an average of 7 buses travel each day from Sagada to Baguio and the same number from Baguio to Sagada with an average fare of Php220 (US\$4.44)* per direction. Earliest trip from Baguio to Sagada is at 3 AM and the latest is at 5 PM. These trips were initially scheduled at 6 AM and 1 PM, respectively, but because of the increasing number of tourists going to Sagada on weekends the schedules were revised. Tourists wanting to go back to Baguio after a day visit in Sagada can take the 5 PM trip. From Sagada however, earliest trip is 5 AM. The estimated average travel time by bus from Baguio to Sagada and vice versa is six hours.

Another available public transport mode going to Sagada are the PUJs from Bontoc, the capital of Mountain Province. An average of 14 to 16 jeepneys are officially registered under the Sagada Operators and Drivers Association (SODA). The average travel time from Sagada to Bontoc is an hour with a regular fare rate of Php45 (US\$0.91)* per direction. Recently added transport mode is the Sagada-Manila bus transit which would pass through Banaue. The fare is Php750 (US\$15.12)* for a one-way twelve-hour trip. There are two bus schedules servicing the Sagada to Manila route and vice versa.

Available modes of transport inside the municipality of Sagada are only PUJs and for hire vehicles. PUJs are limited since only around two vehicles would travel to the north side of Sagada and two to the south side at specific times of day. Because PUJs are limited, tourists often use for hire modes of transport. As of 2016, according to the municipal tourism office the registered for hire vehicles for tourist transport is around 67 vehicles. These vehicles would often increase in number during tourist peak seasons.

In terms of accessibility, Banaue has become very accessible as of present. Since the declaration of Banaue as a World Heritage site in 1995, main roads to Banaue were introduced. Meanwhile, other man-made rice terraces (Batad and Bangaan) sites are accessible by motor vehicle. Since 2016, the DPWH has been improving roads declared for tourism sites under its joint project with DOT. Table 1 summarizes the road conditions in Banaue. Table 1 shows that the municipal and barangay roads have the lowest percentage of concrete. Most of the barangay roads are presently under the earth and gravel classification and many of these roads lead to tourist destination sites.

Table 1. Banaue Road Inventory, 2013(*Source: Municipal Engineering Office, Banaue*)

Road by System of Classification	Total Length, Km	Concrete		Asphalt		Earth/Gravel	
		Km	%	Km	%	Km	%
National Road	59.02	44.92	76.11	0.42	0.71	13.6	23.04
Provincial Road	5	4	80.00	0	0.00	0.941	18.82
Municipal Road	37.1	6.89	18.57	0	0.00	30.21	81.43
Barangay Road	6	0.49	8.17	0	0.00	5.51	91.83
Private Road	1.6	0.835	52.19	0	0.00	0.81	50.63
Total	108.72	57.135	56.93	0.42		60.74	54

*US\$1.00 = Php49.60

Transport modes inside the municipality of Banaue are mostly tricycles as both for public conveyance and for hire. PUJs are also present in accessing Banaue. Trips from Manila to Banaue are available at Php450 (US\$9.1) one way by bus. Two to three bus scheduled trips are available depending on the demand and season. From Baguio City, vans and buses are also available. The trip takes about 12 hours. Trips using vans from Baguio City to Banaue costs Php250 for a 5- to 6-hour travel. The number of trips by van is around 8 and again, depending on the demand and season.

Tourist Destination Sites in Banaue, Ifugao

Top tourist destinations in Banaue are the man-made rice terraces which can be viewed upon arrival in Banaue. Bangaan Rice Terraces, Batad Rice Terraces, and Tappiyah are destination sites that require hiking and trekking before reaching them. (See Figure 2).

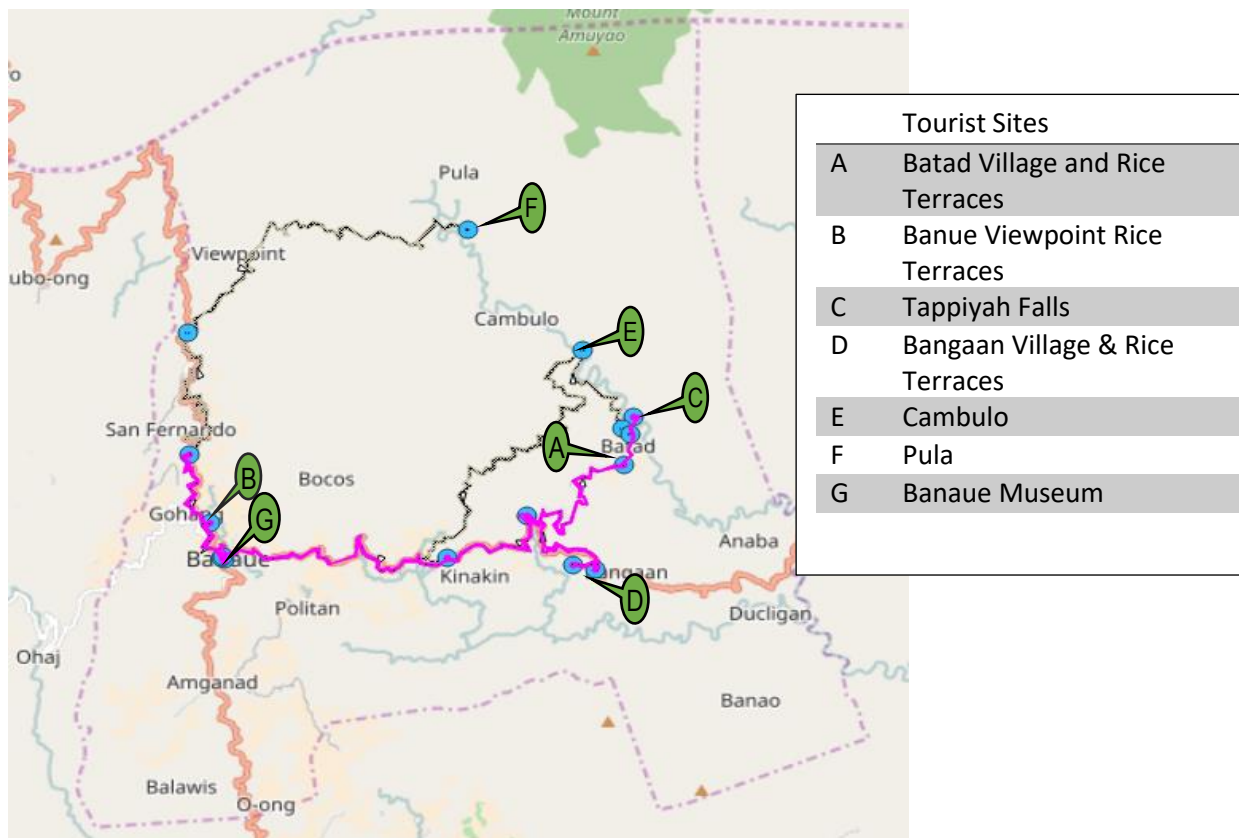


Figure 2. Location of Tourist Destination Sites and Sequence of Visit in Banaue

Average daily activity in Banaue indicates that the Banaue View Point Rice Terraces (Choice B) and Batad Village and Rice Terraces (Choice A) are the most preferred choices by tourists for the first day of visit with 44 and 25.5 percent, respectively. For the average length of stay of three days and two nights, a visitor could visit five major sites. Shown in Table 2 are the percentage distribution of visitors that have chosen the specific tourist spots from their sequence of visited sites.

Table 2. Percentage distribution of tourist travel pattern in Banaue

Choice	Name of Destination	Spot1	Spot2	Spot3	Spot4	Spot5
A	Batad Village & Rice Terrace	28.29	25.50	19.35	14.33	4.61
B	Banaue View Point Rice Terraces	44.00	8.02	18.77	14.33	9.22
C	Tappiyah Falls	0.00	25.21	23.46	17.45	19.82
D	Bangaan Village & Rice Terraces	7.43	13.47	16.42	19.94	11.52
E	Cambulo & Pula Rice Terraces	5.43	8.02	4.99	7.17	2.30
F	Sagada	3.71	3.72	6.74	9.35	11.06
G	Museum & Others	11.14	16.05	10.26	17.45	41.47

Table 2 shows that 44 percent of visitors choose Banaue View Point Rice Terraces as their first destination site followed by Batad Village and Rice Terraces. The table above indicates that the sequence of the top five sites visited are in the order of choices B, A, C, D and G. The possible and shortest routes that are commonly used by tourists are indicated by the magenta color in Figure 2. Table 3 indicates the distances between these destination sites and the possible activities upon reaching the destination site.

Table 3. Distance matrix of choices in Banaue (in km) including activities on site

Name of Destination Site	CHOICE	A	B	C	D	E	F	G	Activities on Site
Batad Village & Rice Terrace	A		19.73	1.57	8.52	3.18	58.21	16.43	Hiking
Banaue View Point Rice Terraces	B	19.73		21.30	17.93	16.26	38.48	3.99	Hiking
Tappiyah Falls	C	1.57	21.30		10.09	4.06	59.78	18.01	Hiking and swimming
Bangaan Village & Rice Terraces	D	8.52	17.93	10.09		17.39	56.41	13.63	Hiking
Cambulo & Pula Rice Terraces	E	3.18	16.26	4.06	17.39		44.35	20.25	Hiking
Sagada	F	58.21	38.48	59.78	56.41	44.35		42.47	Trekking, Swimming, Sight Seeing etc.
Museum & Others	G	16.43	3.99	18.01	13.63	20.25	42.47		Sight-seeing

To travel from top destination site B to A would indicate a total distance to be traveled of 19.73 kilometers then from A to C is 1.57 kilometers.

Tourist spot trajectories for Sagada, Mountain Province

In Sagada, Mountain Province the natural sites include caves such as the Sumaging Cave, Crystal Cave, Burial Cave, and the Balangagan Cave. Bomod-ok Falls, Bokong Falls, Pongas Falls, Lake Danum are the most commonly visited bodies of water. People in the Cordilleras have rich and preserved culture that are considered as tourist attractions as well. Cultural sites include Sagada Weaving and many other weaving industries, the Church of Saint Mary the Virgin, and Ganduyan museum. Popular man-made sites are the hanging coffins and various rice terraces which are located mostly around Sagada because of the agricultural source of economy. Various trekking sites are also available in the area like the Mount Ampacao, Kiltapan or Marlboro Hills where one can see the sunrise, and the Echo Valley (See Figure 3).

On average, a day tour in Sagada could accommodate a maximum of three destination sites. For an average length of stay of three days and two nights the most possible activities of visitors in Sagada are caving, trekking with sight-seeing, swimming, and shopping. From the survey, the sequence of the top five sites visited by tourists are: (A) Burial-Sumaging Cave, (B) Echo Valley-Hanging Coffins, (D) Mt. Kiltepan, (C) Bomod-ok Falls, and (F) Ganduyan Museum plus shopping. This sequence is indicated in Table 4 based from the percentages tourists visited the sites.

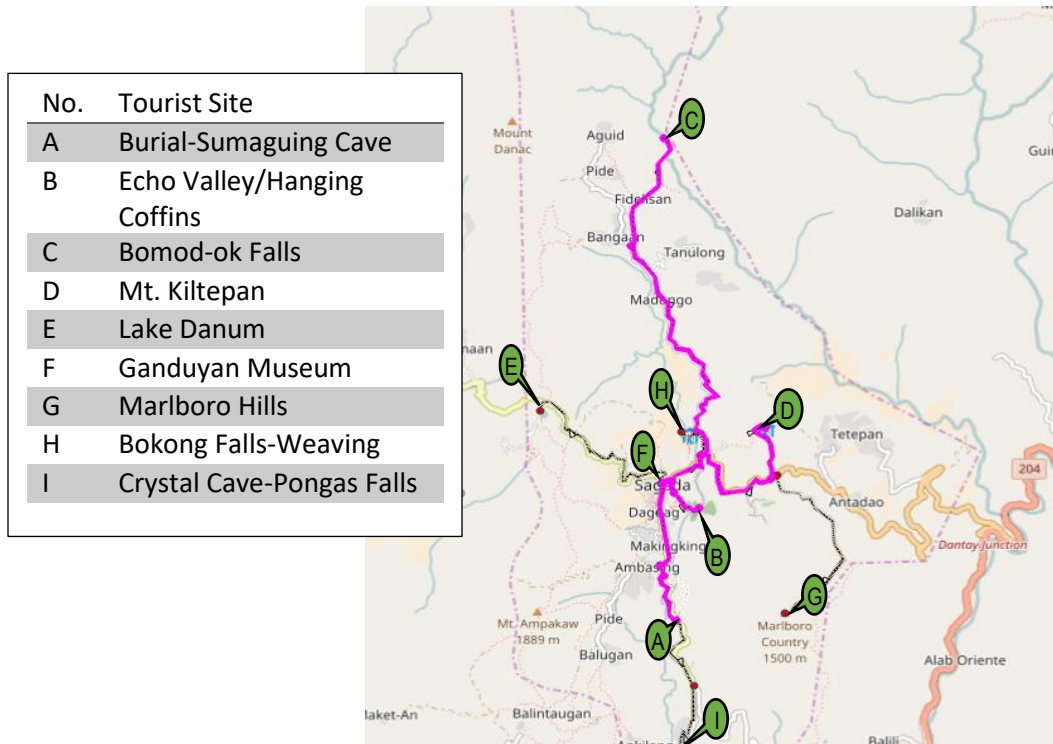


Figure 3. Location of Destination Sites and Projected Travel Sequence of Tourists in Sagada

Table 4. Percentage distribution of tourist travel choice in Sagada

Choice	Name of Destination	Spot1	Spot2	Spot3	Spot4	Spot5
A	Burial-Sumaguig Cave	63.17	13.01	8.90	5.73	4.38
B	Echo Valley-Hanging Coffins	18.81	31.30	22.03	10.26	6.85
C	Bomod-ok Falls	4.36	19.92	11.02	17.90	17.53
D	Mt. Kiltepan	4.75	8.74	21.61	27.68	11.23
E	Pottery-Lake Danum	2.97	6.71	15.04	15.75	18.08
F	Museum, shopping etc.	0.79	3.25	7.84	5.01	24.38
G	Malboro Hills	2.18	4.47	4.45	6.68	6.85
H	Bokong Falls – Weaving	1.39	7.72	6.78	5.97	6.85
I	Crystal Cave – Pongas Falls	1.58	4.88	2.33	5.01	3.84

The distances of these destination sites are provided in the distance matrix in Table 5. Traveling from first destination site, Sumaguig cave to second destination site, Echo valley, covers roughly 3.33 km. Presented in the table below are the possible activities and distances of destination sites.

Table 5. Distance matrix of choices in Sagada (in km) including activities on site

Name of Destination Site	CHOICE	A	B	C	D	E	F	G	H	I	Activities on Site
Sumaging & Burial Cave	A		3.33	9.82	6.29	5.88	2.47	8.39	4.07	3.29	Climbing, Swimming & Exploring
Echo-Hanging Coffins	B	3.33		8.01	4.48	4.32	0.91	6.69	2.26	6.62	Trekking
Bomod-ok Falls	C	9.82	8.01		9.51	10.81	7.40	11.72	6.41	13.11	Trekking & Swimming
Mt. Kiltepan	D	6.29	4.48	9.51		7.25	3.84	4.81	3.76	9.58	Sight-seeing
Pottery & Lake Danum	E	5.88	4.32	10.81	7.25		3.41	9.49	5.06	11.79	Pottery, Sight-seeing
Museum, Church, Weaving, Etc.	F	2.47	0.91	7.40	3.84	3.41		6.08	1.65	5.76	Sight-seeing
Marlboro Hills	G	8.39	6.69	11.72	4.81	9.49	6.08		5.97	11.69	Hiking & Sight-seeing
Bokong Falls	H	4.07	2.26	6.41	3.76	5.06	1.65	5.97		7.36	Trekking & Swimming
Crystal Cave/Pongas Falls	I	3.29	6.62	13.11	9.58	11.79	5.76	11.69	7.36		Trekking & Swimming

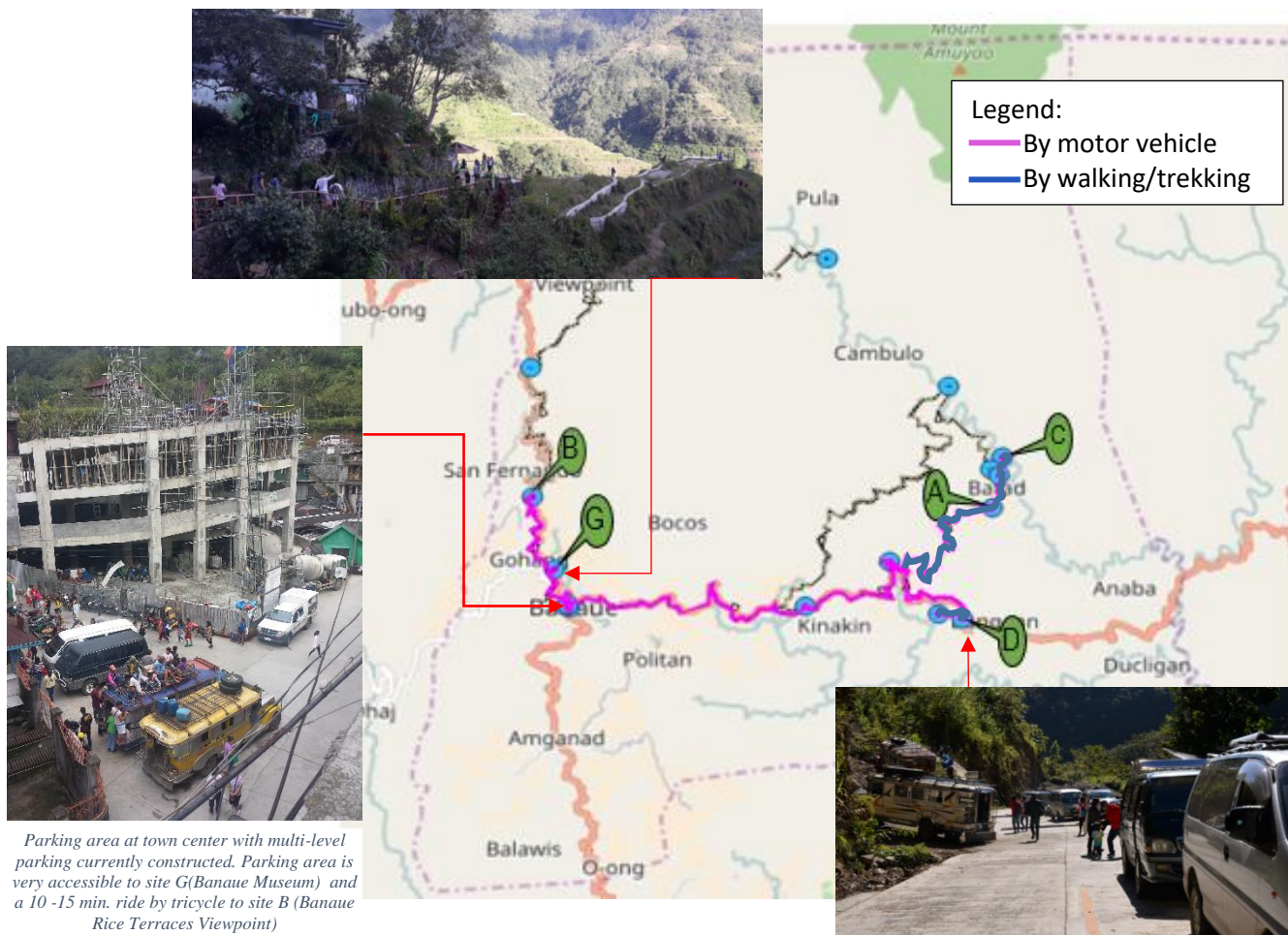


Figure 4. Elevated Parking Lot being Constructed in Banaue Town Center

The following sites in Banaue (Figure 4) are accessible through hiking/walk: sites A (Batad Rice Terraces), C (Tapiyyah Falls), and D (Bangaan Rice Terraces). Hiking from main road to the site takes around 30 minutes to an hour. Regular trips going to Batad only uses two multi-cabs or jeepneys. Travel time usually ranges from 30 to 45 minutes from the town center to Batad.



Figure 5. Location of Quasi Parking lots in Sagada

As indicated in Figures 4 and 5, to access tourism sites in Banaue and Sagada, tourists need to leave their vehicles a certain distance from the tourism destination and walk the rest of the way. Given this current situation, there is a need to provide a tourism accessibility plan which shall indicate proper locations of parking facilities as well as drop-off and pick-up points for public transport services. Sufficient parking facilities and public transport terminals are recommended to be placed within the town center or *poblacion* since this is where most of the hotels are located. This will also encourage tourists to leave their private vehicles at designated places in town.

Initial Findings

Since walking, hiking, and trekking are definitely part of the itinerary when visiting tourist sites in the towns of Banaue and Sagada, it is necessary to regulate tourists' use of private vehicles when visiting tourism sites. Currently, there are some specific jump off points in place where tourists can leave their vehicles and walk the rest of the way to the sites. Tourism planners need to assess the current locations of these jump off points along with the walking trails to develop a comprehensive tourism accessibility master plan that will not only improve tourist experience but also preserve tourist attractions.

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